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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,488	03/08/2004	Allen C. Thompson	10040374-1	2330

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

BOWERS, NATHAN ANDREW

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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04/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/796,488

Applicant(s)

THOMPSON, ALLEN C.

Examiner

NATHAN A. BOWERS

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 26 February 2008 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

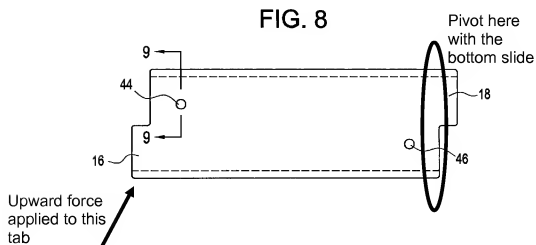
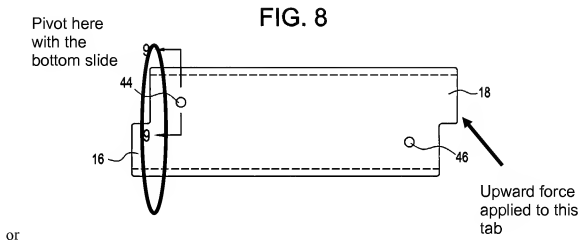
1) Claims 1-3, 8, 11, 14 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Lyman (US 6555361).

With respect to claims 1, 14 and 18, Lyman discloses an array hybridization apparatus and method comprising the use of:

- (a) a slide (Figure 3) for holding an array
- (b) a substrate backing (Figure 9) positioned opposite the slide
- (c) a gasket interposed between the slide and the substrate backing
- (d) a spacer interposed between the slide and the substrate backing adjacent to the gasket

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The two raised rings (Figure 2:26 and 28) are formed on the slide and act as spacers. A gasket (not shown) positioned inside the groove (Figure 3:30) formed by the rings is additionally used to help seal the array reaction chamber. This is disclosed in column 2, line 66 to column 4, line 10. Forces are applied to tabs (Figure 1:16, 18, 20, 22) positioned on the substrate backing and the slide to separate the slide from the substrate backing. In opening the hybridization apparatus, forces applied to the tabs serve to provide a pivoting at the spacer between the substrate backing and the slide. In the diagrams below, Figure 8 represents a back elevation view of the top portion (substrate backing) of the hybridization chamber.



With respect to claim 2, Lyman discloses the apparatus in claim 1 wherein the gasket is a deformable material. Rubber o-ring gaskets are known in the art to be flexible and deformable in nature.

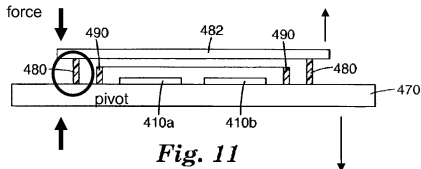
With respect to claims 3, 8 and 11, Lyman discloses the apparatus in claim 1 wherein the spacer comprises a substantially non-deformable material. The spacers are formed as extensions of the slide, and the slide is formed from a rigid plastic.

2) Claims 1, 2, 5, 6, 9 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Halverson (US 6913931).

With respect to claims 1 and 14, Halverson discloses an array hybridization apparatus (Figure 10 and 11) comprising:

- (a) a slide (Figure 11:470) for holding an array (Figure 11:410)
- (b) a substrate backing (Figure 11:482) opposite the slide
- (c) a gasket (Figure 11:490) interposed between the slide and substrate

(d) a spacer (Figure 11:480) adjacent to the gasket and interposed between the slide and substrate. This is disclosed in column 12, lines 40-55. It is apparent from Figure 11 that the height of the standoff is greater than the height of the gasket and that a space between the gasket and first substrate is maintained. Although not expressly described by Halverson, if a force were applied to the substrate backing and the slide, a portion of the slide would inherently separate from the substrate backing.



With respect to claim 2, Halverson discloses that the gasket comprises a deformable material. Gaskets are well known in the art to be made of deformable materials.

With respect to claims 5, 6 and 9, Halverson discloses the apparatus in claim 1 gasket is attached to the substrate backing. Column 12, lines 51-55 specifically state that the gasket may be formed as part of the substrate, or may be constructed as a separate article.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

- 3) Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halverson (US 6913931) as applied to claim 1, and further in view of Merchant (US 6090687).

Halverson discloses the apparatus set forth in claim 1 as set forth in the 35 U.S.C. 102 rejection above, however does not expressly disclose that the gasket and spacer are attached to both the slide and the substrate backing.

Merchant discloses a method for joining and sealing two substrates. A first substrate (Figure 1:25) and a second substrate (Figure 1:32) are provided, as well as multiple standoffs (Figure 1:42) that are positioned between the substrates. Column 3, lines 48-62 indicate that the standoffs are attached to both the first and the second substrates. Column 4, lines 17-43 further teach that a sealing gasket (Figure 1:62) is used to form a chamber (Figure 1:63) between the substrates.

Halverson and Merchant are analogous art because they are from the same field of endeavor regarding the use of standoffs and gaskets to form a chamber between two parallel substrates.

At the time of the invention, it would have been obvious to attach either the gaskets or the spacers disclosed by Halverson to both the slide and the substrate. The motivation for doing so would have been the increased protection from outside influences that is intrinsic in the proposed design. Halverson teaches in column 12, lines 49-51 that standoffs and gaskets are known in the art to protect array chambers from leakage, and also to provide protection from contamination and other undesirable environmental conditions. If the spacers were connected to both of the substrates, a more complete, reliable and thorough seal would be formed.

4) Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halverson (US 6913931) as applied to claim 1, and further in view of Bargoot (US 6750039).

Halverson discloses the apparatus set forth in claim 1 as set forth in the 35 U.S.C. 102 rejections above, however does not expressly indicate that the slide and substrate are moved relative to one another using a living hinge.

Bargoot discloses an analytical device comprising a slide that is positioned within a holder comprising a first member (Figure 3:10) and a second member (Figure 3:11). Forces applied to the first and second members are used to separate the two structures from each other. In column 7, line 51 to column 8, line 17, Bargoot indicates that a living hinge is used to open and close the apparatus.

Halverson and Bargoot are analogous art because they are from the same field of endeavor regarding biochemical analytical devices.

At the time of the invention, it would have been obvious to connect the slides and substrates of Halverson using a living hinge. As evidenced by Bargoot, living hinges are well established in the art as effective means capable of moving a backing substrate relative to a slide containing a sample solution. Living hinges are known to durable, inexpensive, and easy to use.

5) Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halverson (US 6913931) as applied to claim 1, and further in view of Stapleton (US 5436129).

Halverson discloses the apparatus set forth in claim 1 as set forth in the 35 U.S.C. 102 rejections above, however does not expressly indicate that the apparatus includes a lever rotatably mounted on a hinge.

Stapleton discloses an analytical device comprising a slide (Figure 1:16) for holding a biological sample, and a substrate backing (Figure 1:14) positioned opposite the slide. Forces applied to the substrate backing and slide are used to separate the two structures from each other. In column 11, line 29 to column 12, line 19 and column 16, lines 33-49, Stapleton indicates that the slide is separated from the substrate using a lever (Figure 1:24) rotatably mounted on a hinge (Figure 1:18).

Halverson and Stapleton are analogous art because they are from the same field of endeavor regarding biochemical analytical devices.

At the time of the invention, it would have been obvious to utilize a lever and a hinge arrangement in the apparatus described by Halverson as a mechanism to separate the slide from

the substrate. Stapleton teaches that levers and hinges are known in the art, and are useful because they operate in a quick and effective manner. The levers arrangement of Stapleton is especially beneficial because it can operated manually, or can be acted upon by an automated actuator.

6) Claims 12, 13 and 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Halverson (US 6913931) or Lyman (US 6555361) each as applied to claim 1.

With respect to claims 12 and 13, Halverson and Lyman each disclose the apparatus set forth in claim 1 as set forth in the 35 U.S.C. 102 rejections above. Although Halverson and Lyman do not clearly disclose the height of the chamber defined by the spacers, it would have been obvious to ensure that height of the chamber was between 25 to 1,000 microns if it was determined that this range produced optimum results. Chamber height is considered to be a result effective variable that is optimized through routine experimentation. See MPEP 2144.05.

With respect to claim 17, Halverson and Lyman each disclose the apparatus set forth in claim 1 as set forth in the 35 U.S.C. 102 rejections above. Although Halverson and Lyman do not clearly disclose the distance that separates the spacer and gasket, it would have been obvious to ensure that the distance was between 1 and 5 cm if it was determined that this length produced optimum results. The distance of separation between spacer and gasket is considered to be a result effective variable that is optimized through routine experimentation. If a gap of 1-5 cm is found to produce an optimum relationship between the elements of the hybridization arrays, then

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it would have been apparent to implement this arrangement in future experiments. See MPEP 2144.05.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 10/797764. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application is anticipated by the copending application. The copending application includes a slide, a substrate, a gasket, and a standoff. Both applications claim the same structural dimensions and limitations regarding how the spacers and gaskets are connected to the slide and substrate.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4-14 and 16-20 of copending Application No. 10/424175. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application is anticipated by the copending application. The copending application includes a slide, a substrate, a gasket, and a spacer. Both applications claim the same structural dimensions and limitations regarding how the spacers and gaskets are connected to the slide and substrate.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 7 and 10-15 of copending Application No. 10/283450. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application is anticipated by the copending application. The copending application includes a slide, a substrate, a gasket, and a spacer. Both applications claim the same structural dimensions and limitations regarding how the spacers and gaskets are connected to the slide and substrate.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed 26 February 2008 with respect to the 35 U.S.C. 102 rejections involving McGrath have been fully considered and are persuasive. These rejections have been withdrawn.

Applicant's arguments filed 26 February 2008 with respect to the 35 U.S.C. 102 rejections involving McGarry have been fully considered and are persuasive. These rejections have been withdrawn.

Applicant's arguments filed 26 February 2008 with respect to the 35 U.S.C. 102 rejections involving Halverson have been fully considered but they are not persuasive.

Applicant's principle arguments are

(a) Since the inner gasket functions as a spacer, Halverson does not disclose an arrangement in which a spacer is provided outside of the perimeter of the gasket.

In response to Applicant's arguments, please consider the following comments.

Since the term "spacer" alone does not carry a clear definition in the art, it is understood that both gasket structures 480, 490 disclosed by Halverson can be interpreted to act as spacers, especially since "spacers" are known to be both compressible and incompressible. Although exemplary spacer and gasket materials are suggested in paragraphs [0035] and [0036], Applicant's specification does not include any clear definition of what constitutes a "spacer" or a "gasket." The claims in no way require that the "spacer" is non deformable or non compressible.

Accordingly, Halverson does, in fact, disclose the use of a spacer 480 positioned outside the perimeter of the gasket 490. The spacer 480 of Halverson is capable of providing a pivot between the substrate backing and the slide.

Applicant's arguments filed 26 February 2008 with respect to the 35 U.S.C. 102 rejections involving Lyman have been fully considered but they are not persuasive.

Applicant's principle arguments are

(a) The base of Lyman defines a contained region that receives a slide. The slide is centered and within the contained region and not permitted to move. The slide does not engage the raised portions or the gasket, and therefore Lyman does disclose a "spacer...providing a pivot between the substrate backing and the slide."

In response to Applicant's arguments, please consider the following comments.

Lyman discloses a hybridization chamber formed between a cover and a base. The cover is represented in Figures 7-9, and acts as a "substrate backing." The base is represented in Figures 2-6, and acts as a "slide." The base configured to hold an array because, as noted by Applicant, the base portion comprises a region 32 within which a chip supporting an array is placed. Since the array chip is positioned on the base, the base is considered to hold the array. As noted in the rejections above, the base and cover (slide and substrate backing) engage each other using spacers and a gasket.

Conclusion

This is a non-final rejection.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Beisner/
Primary Examiner, Art Unit 1797

/Nathan A Bowers/
Examiner, Art Unit 1797